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Action Research Articles on Education in Turkey: A Content Analysis

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Summary

This study is a content analysis of action research articles in the field of education which were published in Turkish journals and indexed by SSCI and ULAKBIM databases. Therefore, 80 articles were examined. The data was collected through a form developed by the researchers. The articles were analyzed according to the theme and code list provided on the form. The themes included the publication date, journal title, journal type, index, language, source of the articles; the number, gender, nationality, occupation, role of the authors; location, field, topic of the studies; research design, action research type and cycle of the studies; sampling level, size and method; duration, data collection and analysis method; validity and reliability method, and citation count of the studies. The data obtained was interpreted in terms of the percentage and frequency. The most remarkable results of the study are that action research is a less preferred type of research in Turkey, mostly conducted by academicians, and the teacher researchers are very few. In addition, the need to acquire more knowledge and experience on the main features of action research such as its methodology, types and cycle, and the role of the researcher can be considered as another important result derived from the study. Finally, it is hoped that the study will increase the interest in action research and contribute to the researchers.

Keywords: Action research, Educational research, Content analysis.

Introduction

It is the common opinion of the majority of stakeholders that the most important problem in education is its quality. It is argued that the school, teacher, teaching-management and student personnel services do not possess adequate quality. In fact, these three dimensions interact with each other. Therefore, an improvement in one of the dimensions is able to affect the others. For this reason, in general, the focus is on the quality of the teaching provided by the teacher. Often, suggestions are made about how the quality of the teacher can be improved. Some of these suggestions include the teacher's constant self-improvement, following and reading educational research, having a researcher role, etc. However, most teachers do not read academic research or conduct scientific research (Sarı, 2006). According to Tomal (2010), the word "research" startles teachers, since conducting research is thought to be a very complicated and painstaking process, and perhaps it is. The language of academic research is very scientific. In its content, there is an intense scientific inquiry and concern about generating generalizable knowledge. All this makes it difficult to be a teacher researcher. In this case, action research could be the potential solution because according to Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz and Demirel (2011: 18), action researchers concentrate on obtaining information that will enable them to change the conditions of a particular situation they are personally involved in rather than sound generalizations. This information is solution-oriented for people in practice and is made available to them (Güler, Halıcıoğlu and Taşgın, 2013), and the findings can be applied immediately (Köklü, 1993). Teachers may be more willing to participate in the research process in which a problem they encounter is resolved (Ünver, 2005: 143). Taking a role in the solution process of a problem they are experiencing may also motivate them. Action research may be effective in teachers' adopting the role of a "teacher researcher".

Action research is a research approach which is comprised of the collection and analysis of systematic data regarding the application process to identify problems or understand and solve readily available issues (Yıldırım and Şimşek, 2013: 333). In action research, problems are defined, solutions are sought and applied, evaluations are made, solutions are developed and the best solutions are pursued (Büyüköztürk et al., 2011). Simply put, action research is a systematic process for finding the solution of a problem and making progress. It deals with solving a problem more effectively and practically (Tomal, 2010). As can be understood from the definitions, action research is a research method aiming at improving the quality of an institution, employees, work completed, and contributes to development. Action research in the field of education will enhance the quality of the school, the teacher and the work done, that is, the teaching and learning process.

In recent years, action research has become increasingly popular as a research method among practitioners (Koshy, 2005) and is widely used in education (Güler et al., 2013; Köse, 2010; Yıldırım

and Şimşek, 2013) because action research on education is perceived to be important and necessary. In an action research, teachers prescribe a prescription which is written or contributed by them to solve a problem that they face rather than a prescription written by someone else. In this way, they can find more effective and practical solutions to the problem given that they have developed the prescription themselves. Teachers who conduct action research experience professional development (Büyüköztürk et al., 2011), can follow the theoretical developments (Ünver, 2005), and improve their practice constantly (Koshy, 2005). According to Tomal (2010), action research may be satisfactory to the teacher. In action research, the teacher produces knowledge (Mills, 2003, as cited in Büyüköztürk et al., 2011). Action research brings research and practice together (Yıldırım and Şimşek, 2013). It is also an in-service training tool, and is an instrument for bringing innovative teaching and learning approaches to the system that is normally not open to innovation and change (Köklü, 1993). The following expressions illustrate the necessity and importance of an action research in education from a different point of view:

“In many research methods, the opinions of the subjects of the research are not included in the production of knowledge. Their views are not decisive. In addition, the knowledge obtained is generally discussed by the academic community. People involved in the study are often not informed of the results of the research. Action research produces solutions to the problems of the practitioners and puts the solutions into their service.”
(Berg, 2004, as cited in Güler et al., 2013: 261-262)

Developing the practice makes action research necessary in education. However, when the trends in educational research in Turkey are analysed, it is seen that the least preferred type of research is action research (Göktaş, Hasançebi et al., 2012; Selçuk, Palancı, Kandemir and Dündar, 2014). It is hoped that this study will be a beginning to draw researchers' attention to action research, particularly the teacher researchers. It is thought that the study may contribute to the increased conduct of action research in Turkey by teacher researchers. For this reason, a decision was formed to analyse the action research published in Turkey through content analysis. In addition, this study can provide an insight for the researchers to conduct action research because content analysis studies lead researchers (Çiltaş, 2012; Çiltaş, Güler and Sözbilir, 2012; Göktaş, Hasançebi et al., 2012; Selçuk et al., 2014). It is informative for researchers, rescues research from repetition and disorganisation (Çalık and Sözbilir, 2014). With this rationale, the purpose of this research is to analyse action research articles in the field of education published in journals in Turkey indexed by ULAKBIM and SSCI database. This study will therefore address the following research questions:

1. What is the distribution of articles by publication year and journal?
2. What is the distribution of articles by journal type, index, language and source?

3. What is the distribution of articles by the number, nationality and gender of authors?
4. What is the distribution of authors by profession?
5. What is the distribution of authors by their role in research?
6. What is the distribution of articles by country and city?
7. What is the distribution of articles by course/discipline/subject area?
8. What is the distribution of articles by topic?
9. What is the distribution of articles by research method?
10. What is the distribution of articles by action research type?
11. What is the distribution of the articles by whether the action research cycle is specified or not?
12. What is the distribution of articles by sample level/size/method?
13. What is the distribution of articles by the duration of implementation?
14. What is the distribution of articles by data collection method?
15. What is the distribution of articles by data analysis method?
16. What is the distribution of articles by validity and reliability method?
17. What is the distribution of articles by citations counts?

Çalık and Sözbilir (2014: 34-35) aimed to provide a guiding document for researchers in their study titled "Parameters of Content Analysis". They pointed out the basic considerations that should be taken into consideration in content analysis. Some of these are: (i) The original contribution of the study to the field should be expressed displaying its difference from the previous content analysis studies. (ii) Research published over a long period of time should be included in the study. (iii) Resource diversity should be provided as much as possible.

No study on the content analysis of action research in the field of education has been found in Turkey. Therefore, it is expected that the contribution of this study to the field will be unique. There was no time limit in the study. All action research articles published in journals indexed by ULAKBIM and SSCI database in Turkey were included in the study. Thus, it could be asserted that the first and second points stated by Çalık and Sözbilir (2014) are met. In this study, only articles were analysed, theses were not included in the study. This is considered to be a limitation of the study. However, at the same time, it can be considered that this situation adds value to the study. While it is suggested that diverse sources should be included in content analysis studies, it has also been stated that in-depth analysis and synthesis is limited when the number of research investigated are high (Çalık and Sözbilir, 2014). For this reason, only articles were analysed in this study.

Method

Research Model

This study is a descriptive content analysis which aims to analyse action research articles in the field of education published in Turkish journals indexed by ULAKBIM and SSCI databases (Çalık and Sözbilir, 2014).

Population of the Study

The target population of this research is all action research articles in the field of education published in Turkish journals indexed by ULAKBIM and SSCI databases. In order to reach these articles, firstly the related literature is reviewed and Turkish and English keywords were determined for online article search process. These keywords are shown in Table 1:

Table 1. *Keywords used in article search process*

Turkish Keywords	English Keywords
Eylem araştırması	Action research
Aksiyon araştırması	Teacher research
Öğretmen araştırması	Teacher researcher
Uygulayıcı araştırması	Teacher as researcher
Nitel araştırma	Practitioner research
	Reflective practice

Then, using the keywords determined, a four-week article search process between the dates 02 to 29 February 2016 was initiated. At this stage, firstly ULAKBIM Social Sciences Database was scanned from <http://cabim.ulakbim.gov.tr/tr-dizin/>. In addition, a second scan, limited to ULAKBIM National Database, was conducted within Selçuk University's online database in order to prevent possible article loss and to confirm the articles previously obtained. Furthermore, databases of the journals listed in the document dated October 2005 "Scientific Journals Published in Turkey and Indexed in Thomson Reuters Web of Science Citation Database (SCI, SSCI, AHCI)" available on ULAKBIM website were searched. Moreover, keywords in the search were used in different combinations; with or without quotation marks, individually and as two terms together. Thus, keywords could be searched more extensively in article contents and more records could be accessed. A total of 3087 records were examined and 107 articles were found in the whole article search process. However, in the detailed reviews, 27 articles were excluded from the scope of the study due to the reasons such as being out of the field of education, not explicitly stating its research method or design as action research, being a book summary, literature review or opinion essay. As a result, 80 articles, which stated to be an action research in their content, especially in methodology parts, were included in the research.

Data Collection and Analysis

In order to collect data for the research questions, a research-specific form was developed by the researchers using content analysis studies in literature (Çiltaş, 2012; Çiltaş et al., 2012; Göktaş, Hasançebi et al., 2012; Göktaş, Küçük et al., 2012; Hazır Bıkmaz, Aksoy, Tatar and Atak Altınlıkük, 2013; Saban, 2009; Selçuk et al., 2014; Yalçın, Yavuz and İlgün Dibek, 2015). A number of forms used in these content analysis studies were examined to ensure that the form coverage was valid. Sections which were specific to action research were also included. With this form at the same time, a general framework was established for the list of themes and codes to be used in the analysis of the articles. The main themes included the publication date, journal title, journal type, index, language, source of the articles; the number, gender, nationality, occupation, role of the authors; location, field, topic of the studies; research design, action research type and cycle of the studies; sampling level, size and method; duration, data collection and analysis method; validity and reliability method, and citation count of the studies.

In the analysis of the articles, the steps in content analysis indicated by Yıldırım and Şimşek (2013) were followed. These steps include (i) encoding the data, (ii) identifying the themes, (iii) organizing and defining the data according to the codes, and (vi) interpreting the findings. In the first phase of data analysis, the data is coded in a general frame formed prior to this. In this type of coding, while the predetermined theme and code list directed the content analysis, the new themes were also added to the list. In this phase, the general frame was tested by coding randomly selected 8 articles according to theme and code list. Following this, all the articles were analysed and the data were coded in the Microsoft Excel document under the related themes. In the second stage, the codes were categorized according to their similarities and the “sub-themes” related to each theme were reached. In the third step, frequency (f) and percent (%) values were calculated by transferring the data related to the themes and sub-themes into SPSS-20 package program. In the last stage, the findings were interpreted in relation to the research questions with tables. In order to ensure the validity and reliability of the study, all stages were planned, controlled, arranged and agreed upon by the two researchers in once-a-week meetings during the research process.

Findings and Interpretations

In this section, findings related to themes in 17 research questions were presented in tables and interpreted.

Publication Years and Journals of Articles

Table 2 displays the distribution of action research articles by years of publication. In addition, the distribution of the articles by journals is given in the table in Appendix 1. According to this, 18 articles (22.5%) out of a total of 80 articles were published in 2011, reaching its peak. In addition, more than half of the articles ($f = 45$, 56.25%) were published in 2010, 2011 and 2012. However, this rate has dropped in recent years again. When Appendix 1 is examined, it is seen that most articles were published in the journals *Kuram ve Uygulamada Eğitim Bilimleri* ($f=13$), *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi* ($f=6$), *Eğitim ve Bilim* ($f=4$) and *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi* ($f=4$) respectively. The number of the articles in the other journals range between 1 and 3. Based on these findings, it can be argued that action research is a less preferred type of research in educational research in Turkey.

Table 2. *Distribution of articles by years*

Year	<i>f</i>	%	Year	<i>f</i>	%
2004	1	1,25	2011	18	22,5
2006	1	1,25	2012	14	17,5
2007	4	5,0	2013	7	8,75
2008	3	3,75	2014	7	8,75
2009	6	7,5	2015	6	7,5
2010	13	16,25			

Journal Type, Index, Language and Source of Articles

Table 3 shows the distribution of the articles by journal type, index, language and source. Accordingly, more than half of the articles ($f=48$, 60%) were published in international journals, approximately three quarters ($f=56$, 70%) of the articles were indexed in ULAKBIM database, the publication language was Turkish ($f=54$, 67.5%) and were conducted independently of a master's and doctoral thesis ($f=59$, 73.75%). In light of these findings, firstly, the number of articles published in English in international journals and indexed by SSCI database in Turkey was low. In this context, it could be important to increase the number of articles in English published in international journals. Secondly, it could be argued that the studies of master's and doctoral thesis based on action research were not published as articles or these articles were not indexed in ULAKBIM and SSCI databases.

Table 3. *Distribution of the articles by journal type, index, language and source*

	<i>f</i>	%
Journal type*		
National	32	40
International	48	60
Index		
Ulakbim	56	70
SSCI and Ulakbim	24	30
Language		
Turkish	54	67,5
English	23	28,75
Turkish and English	2	2,5
German	1	1,25
Source**		
Master's thesis	10	12,5
Doctoral thesis	11	13,75
Independent	59	73,75

* Based on the names of the journals and the descriptive information on the journals' websites.

** Based on the information in the article contents and YOK National Thesis Centre.

Number, Nationality and Gender of Authors

Table 4 shows the distribution of action research articles by number, nationality and gender of the authors. Accordingly, 80 studies were mostly conducted by single ($f=33$, 41.25%) and two ($f=30$, 37.5%) authors, and these studies were mostly written by Turkish authors ($f=72$, 90%). The number of male and female writers was surprisingly equal in a total of 158 writers. In addition, there is only one study conducted by Turkish and foreign authors collaboratively. According to these findings, it could be asserted that the studies of action research tend to be performed by one or two authors and that gender is not a determinant factor in this.

Table 4. *Distribution of articles by number, nationality and gender of authors*

	<i>f</i>	%
Number of authors		
Articles with 1 author	33	41,25
Articles with 2 authors	30	37,5
Articles with 3 authors	11	13,75
Articles with 4 authors	3	3,75
Articles with 5 authors	1	1,25
Articles with 7 authors	1	1,25
Articles with 8 authors	1	1,25
Nationality		
Articles of Turkish authors	72	90
Articles of foreign authors	7	8,75
Articles of Turkish and foreign authors	1	1,25
Gender		
Male	79	50
Female	79	50

Profession of Article Authors

Table 5 illustrates the distribution of the authors of action research articles by profession. According to this, out of a total 158, a great majority of the authors ($f=142$, 89.9%) were academicians at universities such as professors, associate professors, assistant professors, lecturers and research assistants. However, the ratio of the total number of authors working as teachers in the schools affiliated to the Ministry of National Education ($f=16$, 10.1%) was rather low. In addition, only 7 (4.4%) teachers participated in studies independently of postgraduate education. Moreover, it was found out that only 3 of these 7 authors took part in the single-authored articles. These findings indicate that there is a need to increase teacher participation in action research, also called 'teacher research'. Therefore, it is important to encourage teachers to conduct action research or to increase academician-teacher cooperation.

Table 5. *Distribution of article authors by profession*

Profession*	<i>f</i>	%
Teacher	7	4,4
Teacher and master's degree student	8	5,1
Teacher and doctoral student	1	0,6
Academician	130	82,3
Academician and master's degree student	1	0,6
Academician and doctoral student	11	7,0

* Based on the information in the articles and on the authors' websites.

Roles of Article Authors in Research

Table 6 shows the distribution of the article authors by their role in action research. According to this, while 72 out of 158 authors (45.6%) were directly involved in the practice applied in the research to solve a problem with roles such as practitioner and participant observer, 32 of them (20.3%) were outside with passive roles such as master's or doctoral thesis advisor, or guide. However, the roles of 54 (34.2%) of the article authors in the research could not be determined from the article content. It was also identified that 50 out of these 54 authors took part in articles with two or more authors. Given this, it could be important for researchers to elaborate on their roles in their articles, especially in studies conducted by more than one author. These findings may also contribute to the future researchers' understanding of how collaboration could be achieved in the course of action research.

Table 6. *Distribution of article authors by their role in research*

Roles	<i>f</i>	%
In the practice (practitioner, participant observer, etc.)	72	45,6
Out of the practice (advisor, guide, etc.)	32	20,3
Undetermined	54	34,2

Countries and Cities Where Studies Were Conducted

Table 7 shows the countries where action research was conducted, while Table 8 shows the distribution by city in Turkey. When these tables are examined, it can be seen that the majority of studies ($f=68$, 85%) were conducted in a total of 25 cities in Turkey. The cities where studies were conducted most were Ankara ($f=11$), Eskişehir ($f=10$), İstanbul ($f=5$) and Bolu ($f=4$). The number of studies conducted in other 21 cities in Turkey varied between 1 and 3. However, studies abroad were relatively low ($f=8$, 10%). According to these findings, the majority of the articles analysed in this study were based on studies which were carried out inside Turkey. There was also no action research conducted in 56 of a total 81 cities in Turkey.

Table 7. *Distribution of studies by country*

Countries	<i>f</i>	%
Turkey	68	85
Turkish Republic of Northern Cyprus	2	2,5
Australia	2	2,5
Spain	1	1,25
Canada	1	1,25
Kosova	1	1,25
Poland	1	1,25
Mixed (Turkey and England)	1	1,25
Undetermined	3	3,75

Table 8. *Distribution of studies by city in Turkey*

Cities (Turkey)	<i>f</i>	%	Cities (Turkey)	<i>f</i>	%
Ankara	11	13,75	Afyonkarahisar	1	1,25
Eskişehir	10	12,5	Çanakkale	1	1,25
İstanbul	5	6,25	Denizli	1	1,25
Bolu	4	5,0	Düzce	1	1,25
Adana	3	3,75	Giresun	1	1,25
Gaziantep	3	3,75	Hatay	1	1,25
Sakarya	3	3,75	Kars	1	1,25
Tokat	3	3,75	Kırşehir	1	1,25
Trabzon	3	3,75	Kütahya	1	1,25
Burdur	2	2,5	Ordu	1	1,25
Kocaeli	2	2,5	Rize	1	1,25
Mersin	2	2,5	Zonguldak	1	1,25
Adıyaman	1	1,25	Undetermined	4	5

Course/Discipline/Subject Areas of Articles

Table 9 shows the distribution of course, discipline or subject areas in which action research studies are conducted. According to this, a total of 80 studies were carried out in the course, discipline or subject areas collected in 12 different categories. These categories are; science ($f=15$), social science ($f=14$), foreign language ($f=10$), mathematics ($f=7$), pedagogical knowledge ($f=7$), school/staff

development (f=6), special education (f=6), Turkish (f=4), research methods (f=3), preschool education (f=3), distance education (f=3) and extracurricular activities (f=2). Regarding these findings, it could be argued that action research was conducted and can be conducted for very different courses, discipline and subject areas, especially science, social science, foreign language, mathematics and pedagogical knowledge (f =53, 66.25%).

Table 9. *Distribution of articles by the course/discipline/subject areas*

Course/discipline/subject areas	<i>f</i>	%
Science (science and technology, physics, chemistry, biology etc.)	15	18,75
Social science (social studies, history, geography etc.)	14	17,5
Foreign language (English, German)	10	12,5
Maths	7	8,75
Pedagogical knowledge (classroom management etc.)	7	8,75
School/staff development (vision-mission development etc.)	6	7,5
Special education (education of students with disability)	6	7,5
Turkish (literacy education- teaching to read and write)	4	5
Research methods (project management, etc.)	3	3,75
Preschool education (school maturity, time awareness)	3	3,75
Distance education	3	3,75
Extracurricular activities (social activities, etc.)	2	2,5

Topics of Articles

Table 10 demonstrates the distribution of action research articles by their topics. Accordingly, three quarters of 80 articles (f=60, 75%) focused on the effectiveness of a learning-teaching approach, method or technique on achievement, skill, attitude, etc. The other topics were professional development of teachers (f=12); school vision, mission, strategic plan development (f=2); curriculum development (f=2); opinions on improving libraries (f=1); professional development of school administrators (f=1), opinions about student complaints (f=1), opinions about instructional problems (f=1). According to these findings, it could be said that a great majority of action research articles concentrated on the development of learning-teaching processes.

Table 10. *Distribution of articles by their topics*

Topics	<i>f</i>	%
Effectiveness of a learning-teaching approach, method, technique	60	75
Professional development of teachers	12	15
School vision, mission, strategic plan development	2	2,5
Curriculum development	2	2,5
Opinions on improving libraries	1	1,25
Professional development of school administrators	1	1,25
Opinions on student complaints	1	1,25
Opinions on instructional problems	1	1,25

Research Methods of Articles

Table 11 displays the distribution of action research articles by research methods. According to the table, 46 out of 80 (57.5%) studies used action research as an independent research method. In these studies, action research was considered as a different research method which utilized both quantitative and qualitative research. However, 31 studies (38.75%) were based on action research as one of the methods of qualitative research. Finally, in 3 studies (3.75%), it was stated that action research was carried out within mixed research methods. These findings show that studies used action research usually as an independent research method, or as one of the qualitative research methods, and rarely in mixed research methods. Thus, it could be argued that action research can be completed within the framework of these three methods.

Table 11. *Distribution of articles by their methods*

Research methods	<i>f</i>	%
Independent action research	46	57,5
Action research within qualitative research	31	38,75
Action research within mixed research	3	3,75

Types of Action Research of Articles

Table 12 presents the distribution of action research by their types. The table shows that 72 out of 80 studies (90%) did not specify which type of action research was used. Given the diversity of classifications of types of action research in the literature, it is difficult to identify the types of these studies based on prediction alone. Therefore, the types of related studies could not be determined. The other 8 studies were based on technical/scientific/collaborative action research ($f=3$), individual teacher action research ($f=1$), collaborative and participatory action research ($f=1$), participatory action research ($f=1$), emancipator/developmental/critical action research ($f=1$) and practical/mutual collaborative/deliberate action research ($f=1$). These findings show that the types of action research the studies took as a basis was mostly not stated. However, providing this information could be important in terms of its contribution to the quality of action research studies.

Table 12. *Distribution of articles by types of action research*

Types of action research	<i>f</i>	%
Undetermined	72	90
Technical/scientific/collaborative action research	3	3,75
Individual teacher action research	1	1,25
Collaborative and participatory action research	1	1,25
Participatory action research	1	1,25
Emancipator/developmental/critical action research	1	1,25
Practical/mutual collaborative/deliberate action research	1	1,25

Action Research Cycle of Articles

Table 13 shows the distribution of the articles by whether the action research cycle is specified or not. According to this, out of a total 80, 47 studies (58.75%) explained the research cycle for solving an educational problem and making progress. This cycle, peculiar to action research, is a systematic process which generally includes identifying the problem, searching for a solution, applying the solution, making an evaluation and trying different ways for solution if necessary. However, in 33 studies (41.25%), this research cycle was not outlined in detail and it was not identified from the articles. It could be stated that this situation might affect the quality of action research studies. Therefore, it could be significant to structure and report studies around such a cycle to contribute to the quality of action research articles.

Table 13. *Distribution of articles by action research cycle*

Action research cycle	<i>f</i>	%
Specified	47	58,75
Unspecified /Undetermined	33	41,25

Sample Level, Size and Sampling Method of Articles

Firstly, Table 14 shows the distribution of action research articles by sample level. Accordingly, most of the studies were done with prospective teachers from faculties of education ($f=22$, 27.5%), middle school students ($f=19$, 23.75%), mixed participants with various status such as manager, teacher, student, parent ($f=14$, 17.5%), and primary school students ($f=7$, 8.75%). The number of studies conducted with participants from preschool, high school, university departments except the faculties of education, master's degree students, teachers and academicians was low, ranging from 1-3. Since no studies were completed with the participation of doctoral students either, it can be argued that there is a lack of examination of action research on such low sample levels.

Table 14. *Distribution of the articles by sample level*

Sample level	<i>f</i>	%
Preschool students	1	1,25
Primary school students (grades 1-4)	7	8,75
Middle school students (grades 5-8)	19	23,75
Primary school students (grades 1-8)	2	2,5
High school students (grades 9-12)	2	2,5
University students at faculty of education	22	27,5
University students at other department	3	3,75
Master's degree students	3	3,75
Teachers	3	3,75
Academicians	3	3,75
Mixed (Administrator, teacher, student, parent etc.)	14	17,5
Unspecified / Undetermined	1	1,25

Second, in Table 15, the distribution of action research articles by sample size is given. The number of participants in the studies ranged from 1 to 529. In addition, the majority of these studies (f=52, 65%) were carried out with participants ranging from 1-20 to 21-40. Moreover, it is seen that as the number of participants increased, the number of studies conducted decreased. Thus, it could be stated that studies of action research tend to be conducted in small groups.

Table 15. *Distribution of articles by sample size*

Sample size	<i>f</i>	%
Between 1-20	30	37,5
Between 21-40	22	27,5
Between 41-60	10	12,5
Between 61-80	4	5
Between 81-529	9	11,25
Undetermined	5	6,25

Finally, in Table 16, the distribution of sampling methods of action research articles is displayed. According to this, it is seen that the studies mostly used purposeful (f=25, 31.25%) and voluntary (f=13, 16.25%) sampling methods. The number of studies which utilised random and cluster sampling methods is considered to be rather low. However, the sampling method used in nearly half of a total of 80 studies could not be identified. Therefore, it could be assumed that purposeful and voluntary sampling methods were generally used in action research studies. Moreover, to contribute to the quality of the studies, details about sampling methods should be given in the articles.

Table 16. *Distribution of samples by sampling method*

Sampling methods	<i>f</i>	%
Purposeful sampling	25	31,25
Voluntary sampling	13	16,25
Random sampling	5	6,25
Cluster sampling	1	1,25
Undetermined	36	45

Duration of Implementation in Articles

Table 17 shows the distribution of action research studies by the duration of the implementation process. Accordingly, in a total of 80 studies, implementations lasted a minimum of 1 week and a maximum of 84 weeks. Moreover, it was observed that in more than half of the studies (f=45, 56.25%) implementations were performed between 13-16, 1-4, 5-8 and 9-12 weeks respectively. However, the number of studies with an implementation period longer than 28 weeks was only 2. In 25 studies (31.25%) implementation periods were not identified. To contribute to the quality of the studies, details about implementation periods should be presented in the articles. In light of these findings, it could be said that implementations in action research studies were usually carried out within an academic term.

Table 17. *Distribution of articles by duration of implementation*

Duration*	<i>f</i>	%
1-4 weeks	11	13,75
5-8 weeks	6	7,5
9-12 weeks	5	6,25
13-16 weeks	23	28,75
21-24 weeks	3	3,75
25-28 weeks	5	6,25
56-84 weeks	2	2,5
Undetermined	25	31,25

*Implementation periods specified in the studies were converted into weeks.

Data Collection Tools of Articles

The distribution of action research articles by the number of their data collection tools is given in Table 18 and the distribution of the data collection tools is given in Table 19. According to Table 18, it is seen that the majority of a total 80 studies ($f=64$, 80%) were conducted with 1, 2 and 3 different data collection tools. In most of these studies, 2 different data collection tools ($f=30$, 37.5%) were used. However, the number of studies which used 4 and more data collection tools was relatively low. According to Table 19, it is seen that, out of 13 different data collection tools, the most used ones were interviews (25.5%), observation (20%) and documents (15.5%). Furthermore, surveys; student or researcher diaries; tests measuring achievement, skill and performance; self-assessment forms; and scales were sometimes used as data collection tools. Thus, it could be said that a wide variety of data collection tools were used in action research studies, and mostly 1-3 kinds of data collection tools were used, namely interviews, observation and documents. Moreover, to contribute to the quality of further studies, it might be important to make a triangulation using multiple data collection tools.

Table 18. *Distribution of articles by the number of data collection tools*

The number of data collection tools	<i>f</i>	%
Articles using 1 type of data collection tool	17	21,25
Articles using 2 types of data collection tool	30	37,5
Articles using 3 types of data collection tool	17	21,25
Articles using 4 types of data collection tool	9	11,25
Articles using 5 types of data collection tool	6	7,5
Articles using 6 types of data collection tool	1	1,25

Table 19. *Distribution of data collection tools used in studies*

Data collection tool	<i>f</i>	%
Interview	51	25,5
Observation	40	20
Documents (reports, files, materials, etc.)	31	15,5
Questionnaire	23	11,5
Diary (student and researcher diaries)	16	8
Achievement test	14	7
Other tests (tests measuring skill/performance etc.)	10	5
Self-assessment form	6	3
Scale	4	2
Inventory	2	1
Personal information form	1	0,5
Checklist	1	0,5
Rubric	1	0,5

Data Analysis Methods of Articles

Table 20 presents the distribution of action research articles based on the number of data analysis methods that are used, whilst Table 21 presents the distribution of analysis methods. According to Table 20, 1 or 2 different data analysis methods were used in the majority of a total of 80 studies ($f=66$, 82.5%). The number of studies using 3 and 4 different analysis methods was relatively low. According to Table 21, qualitative (57.03%), quantitative descriptive (30.38%) and quantitative predictive (12.59%) data analysis methods were used. Among a total of 8 methods placed under these categories, qualitative descriptive analysis (29.63%), qualitative content analysis (27.40%) and frequency/percentage analysis (25.19%) were found to be the most common. The least used ones were regression, Wilcoxon and correlation tests. Overall, the use of qualitative data analysis methods and quantitative data analysis methods were 57.03% and 42.97% respectively. These findings suggest that in action research studies, (i) generally 1 or 2 different data analysis methods were used; (ii) these were mostly qualitative and quantitative descriptive analysis methods; (iii) and, in general, both qualitative and quantitative analysis methods were used.

Table 20. *Distribution of the articles by the number of data analysis methods*

The number of data analysis methods	<i>f</i>	%
Articles using 1 type of data analysis method	40	50
Articles using 2 types of data analysis method	26	32,5
Articles using 3 types of data analysis method	13	16,25
Articles using 4 types of data analysis method	1	1,25

Table 21. *Distribution of data analysis methods used in studies*

Data analysis method	<i>f</i>	%
Qualitative analysis methods	77	57,03
Qualitative descriptive analysis	40	29,63
Qualitative content analysis	37	27,40
Quantitative descriptive analysis methods	41	30,38
Frequency/percentage	34	25,19
Mean/standard deviation	7	5,19
Quantitative predictive analysis methods	17	12,59
t-test	11	8,15
Correlation	3	2,22
Wilcoxon test	2	1,48
Regression	1	0,74

Validity and Reliability Methods of Articles

The distribution of action research articles by validity and reliability methods is provided in Table 22 and Table 23. According to Table 22, it is seen that in most of the studies ($f = 34$, 42.5%) 1 and 2 different validity and reliability methods were used, and in about one quarter of the studies ($f=18$, 22.5%) 3 to 6 different validity and reliability methods were used. However, the validity and reliability methods used in 28 studies (38%) were not disclosed and thus could not be determined. According to Table 23, out of the 16 different methods in the studies, intercoder reliability (20.8%), expert opinion for data collection tool (19.2%), triangulation (14.4%) and thick description (10.4%) were used most. These findings suggest that a wide variety of validity and reliability methods were used in action research, and that generally 1 or 2 different methods were used. It was also found that intercoder reliability, expert opinion for data collection tool, triangulation and thick description were the mostly used methods. Moreover, it could contribute to the quality of further studies to present details of the reliability and validity measures taken by researchers during this process.

Table 22. *Distribution of the articles by validity and reliability methods*

The number of validity and reliability methods	<i>f</i>	%
Studies using 1 type of validity-reliability method	16	20
Studies using 2 types of validity-reliability method	18	22,5
Studies using 3 types of validity-reliability method	6	7,5
Studies using 4 types of validity-reliability method	7	8,75
Studies using 5 types of validity-reliability method	3	3,75
Studies using 6 types of validity-reliability method	2	2,5
Undetermined	28	35

Table 23. *Distribution of validity/reliability methods used in studies*

Validity and reliability methods	<i>f</i>	%
Intercoder reliability	26	20,8
Expert opinion for data collection tool	24	19,2
Triangulation	18	14,4
Thick description	13	10,4
Peer debriefing	10	8,0
Member checking	7	5,6
Analysis of reliability coefficient of data collection tool	7	5,6
Piloting for data collection tool	7	5,6
Prolonged engagement	4	3,2
Inter-observer reliability	2	1,6
Treatment integrity	2	1,6
Researcher flexibility	1	0,8
Output validity	1	0,8
Democratic validity	1	0,8
Persistent observation	1	0,8
Factor analysis for data collection tool	1	0,8

Citation Counts of Articles

Table 24 shows the distribution of action research articles by citation counts. According to the table, it could be seen that out of 80 studies, 35 of them (43.75%) were not cited and 34 (42.5%) received 1 to 10 citations. The number of studies cited between 11-45 ($f=11$, 13.75%) was very low. Moreover, none of the articles received more than 45 citations. These findings suggest that the number of citations the action research articles received was low, and was found to be mostly between 0-10.

Table 24. *Distribution of articles by citation counts**

Citation Counts of Articles	<i>f</i>	%
0 cited articles	35	43,75
1-10 cited articles	34	42,5
11-19 cited articles	5	6,25
21-24 cited articles	3	3,75
33 cited articles	1	1,25
45 cited articles	2	2,5

* Based on Google Scholar data.

Discussion, Conclusions and Recommendations

In this study, action research articles published in the field of education in Turkish journals indexed by ULAKBIM and SSCI databases were analyzed by descriptive content analysis. Below are the summary, discussion, and recommendations based on the findings outlined in the study.

The study shows that action research articles have been published since 2004. Although the number of the articles increased between 2010 and 2012, it was generally low. It was found that the number of citations made to these studies was also low. The study also indicated that action research

articles were usually published in Turkish at the international journals indexed by ULAKBIM database, and studies were conducted mostly in Ankara, Eskişehir, İstanbul and Bolu by one or two Turkish authors. On the other hand, there were a low number of articles which were published by Turkish journals indexed by SSCI database, which were written in a foreign language in international journals, and which were conducted outside Turkey with foreign authors collaboratively. Similarly, the number of articles from post-graduate studies was also low. In addition, the gender of authors was not found as a determinant. Furthermore, it was found that studies were mostly conducted by academicians, and the participation of teachers and postgraduate students was very low. Finally, researchers took part in the implementation with active roles such as “practitioner, participant observer” in approximately half of the studies, and were out of the implementation with passive roles such as “advisor, guide” in one fifth of the studies.

We also found that action research articles were written mainly on science, social science, foreign language, and mathematics including various course, discipline and subject areas. In three quarters of the studies, the effectiveness of a learning-teaching approach, method, or technique on achievement, skill, attitude etc. was investigated. At this point, it should be noted that action research could be conducted on all topics related to the development of students, teachers, classrooms, schools and teaching (Tomal, 2010).

It was also found that action research articles were conducted within one semester (approximately 14 weeks) and mostly with 1-20 to 21-40 participants chosen from prospective teachers at the faculties of education and middle school students (grades 5-8, aged 11-14). At this point, it could be argued that studies at different sample levels are essential. In addition, it could be said that the participants were usually selected on the basis of purposeful and voluntary sampling methods. Purposeful sampling is a sampling technique that is commonly used in action research, because it allows the selection of those subjects whose improvement is desired (Tomal, 2010).

The study also showed that action research is usually carried out as an independent or one of the qualitative research methods. In these studies, it was found that a wide variety of quantitative and qualitative data collection tools were used, primarily interviews, observation and documents. Similarly, quantitative and qualitative data analysis methods were used. Tomal (2010: 11) states that there are three approaches to research: quantitative, qualitative and action research. Given this, it could be assured that action research differs from quantitative and qualitative research despite that it shares some of their characteristics. It could be argued that the use of both qualitative and quantitative data collection tools and analysis methods in the articles supported this suggestion. Finally, it was observed that a wide variety of validity and reliability methods were used in the studies, and the most used ones were intercoder reliability, expert opinion, triangulation and thick description.

Perhaps the most noteworthy aspect of the study's findings is the low interest in action research in educational research in Turkey. The first finding that supports this is the number of articles that were published. Despite the lack of time constraints in the study, there were only 80 action research articles published in 35 different journals between 2004 and 2015. In addition, although there was an increase in the number of articles between 2010 and 2012, it has declined since 2013. A reason for the low number of articles reached might be excluding the articles that were indexed in other databases. However, considering the total number of journals indexed in the ULAKBIM Social Sciences database was 243 during the period of the research, we could conclude that action research is a less preferred type of research. Trends in educational research in Turkey also support this conclusion (Göktaş, Hasançebi et al, 2012; Selçuk et al, 2014). Another finding that supports this conclusion could be the fact that 35 articles were not cited at all, while others had a low number of citations. Moreover, although the vast majority of article authors were academicians (f=130), the number of teachers (f=7) and postgraduate students (f=21) was seen to be rather low. Thus, it can be concluded that teachers and postgraduate students in Turkey did not show sufficient interest in action research. However, it is emphasized in the literature that action research as a research method is very appropriate and important for teachers and postgraduate students (Ferrance, 2000; Gay, Mills, and Airasian, 2012; Koshy, 2005; Tomal, 2010). Therefore, we recommend that action research should be taught as a course to prospective teachers at graduate and postgraduate levels. In addition, in-service training programs should be organized for teachers. These efforts may help increase the interest on action research and the number studies in Turkey.

Finally, it is imperative to understand and address other aspects that were found in this study. First, we could not determine or identify the role of 54 authors led in the research, the type of action research used in 72 studies, action research cycle in 33 studies, the sampling method in 36 studies, the duration of implementation in 25 studies, and the type of validity and reliability methods in 28 studies. It could be argued that this had an impact on the certainty of the related findings reached in the study. On the other hand, this might also affect the quality of action research studies. Therefore, we believe that a detailed description of the cycle and the type of action research, in particular, is of vital importance and may contribute to the quality of future action research. Similarly, it could be critical to describe the validity and reliability measures taken by researchers for further studies. According to Tomal (2010), action research is particularly susceptible to threats of internal validity and the researcher bias. Thus, methods such as triangulation, peer debriefing and member checking could be recommended (Yıldırım and Şimşek, 2013). As a result, it is expected that other findings of the study will also raise interest in action research and contribute to the researchers.

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Appendix 1. *Distribution of articles by journals*

	Name of the journal	<i>f</i>
1	Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi	1
2	Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi	4
3	Akdeniz Eğitim Araştırmaları Dergisi	2
4	Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi	2
5	Bilgi Dünyası	1
6	Çukurova Üniversitesi Eğitim Fakültesi Dergisi	2
7	Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi	2
8	Değerler Eğitimi Dergisi	1
9	Eğitim ve Bilim	4
10	Eurasian Journal of Educational Research	2
11	Fırat Üniversitesi Sosyal Bilimler Dergisi	2
12	Gaziantep Üniversitesi Sosyal Bilimler Dergisi	3
13	Hacettepe Üniversitesi Eğitim Fakültesi Dergisi	6
14	International Journal of Environmental & Science Education	2
15	İlköğretim Online	5
16	İnönü Üniversitesi Eğitim Fakültesi Dergisi	1
17	Karadeniz Sosyal Bilimler Dergisi	1
18	Kastamonu Eğitim Dergisi	3
19	Kuram ve Uygulamada Eğitim Bilimleri	13
20	Marmara Coğrafya Dergisi	2
21	Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi	2
22	Millî Eğitim	2
23	Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi	1
24	Necatibey Eğitim Fakültesi Elektronik Fen ve Matematik Eğitimi Dergisi	1
25	Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi	1
26	Pamukkale Üniversitesi Eğitim Fakültesi Dergisi	1
27	Polis Bilimleri Dergisi	1
28	Spor Bilimleri Dergisi	1
29	Turkish Online Journal of Distance Education	1
30	Turkish Online Journal of Qualitative Inquiry	2
31	Turkish Studies	2
32	Türk Eğitim Bilimleri Dergisi	2
33	Türk Fen Eğitimi Dergisi	1
34	Türklük Bilimi Araştırmaları	1
35	Uludağ Üniversitesi Eğitim Fakültesi Dergisi	2
Total		80